Quality&**Precise**

MAXWELLON MRM080/180

9kHz~8GHz/18GHz

Modular Monitoring Receiver

2023

Maxwellon

The MRM 080/180 modular monitoring receiver has excellent performance and compact size, with monitoring frequencies ranging from 9 kHz to 8 GHz/18 GHz, real-time bandwidth up to 40 MHz digital intermediate frequency, and frequency scanning speed up to 80 GHz/second; The standard ITU measurement mode can be widely used in radio monitoring to meet the testing requirements of radio monitoring stations. The receiver comes with a PC upper computer that can be used independently or can be developed using a comprehensive SDK development kit for secondary development. The receiver itself has strong signal analysis and processing capabilities, and the PC upper computer can directly obtain measurement results. Users can flexibly carry out secondary development according to their needs. In the application of distributed RF sensors, multiple receiver modules can be remotely deployed and connected on standard TCP/IP networks.

Key Feature

- Frequency range 9kHz~8GHz/18GHz
- Adjustable digital intermediate frequency bandwidth, up to 40MHz panoramic intermediate frequency display
- Panoramic scanning speed up to 80GHz/s for quick setup and discovery
- Equipped with panoramic scanning, frequency band scanning, list scanning, and fixed frequency point monitoring functions
- Equipped with multiple audio demodulation modes such as AM/FM/LSB/USB/CW
- Supports multi-objective audio demodulation and field strength measurement, and provides an analog audio stream interface
- Capable of AM/FM modulation analysis to meet standard ITU measurement requirements
- Signal storage and playback facilitate the monitoring, processing, and positioning of transient signals. I/Q data stream recording, with a storage bandwidth of up to 40MHz and real-time storage depth of up to 4Gb
- Supports GPS/BD time synchronization function, with data timestamp accuracy better than 40ns
- Complete SDK development kit and API documentation, allowing users to flexibly conduct secondary development according to their needs
- LAN interface for remote control and data output
- Low power consumption, light weight, and compact size, suitable for system integration and installation

Specifications

Model	MRM080	MRM180
RF		
Frequency Range	9kHz~8GHz	9kHz~18GHz
Input impedance	50Ω	
VSWR	≤ 2.0:1 (typical value, RF 10dB attenuation)	≤ 2.5:1
Input attenuation	RF attenuator: Max. 30dB IF attenuator: Max. 30dB	
Amplitude accuracy	± 1.5dB	
Noise coefficient(Low noise mode)	Typical value 12dB	Typical value 18dB
Third order cutoff point (TOI)(Within the input band)	Typical value 13dBm	Typical value 10dBm(Low distortion)
Second order intercept (SOI)	Typical value 45dBm	Typical value 40dBm(Low distortion)
Phase Noise(fc = 1.0GHz)	-98dBc/Hz@10kHz	-90dBc/Hz@10kHz
Image Rejection	9kHz~3.6GHz: 90dB (typical value) 3.6 GHz~8GHz: 80dB (typical value)	60dB (typical value)
IF Rejection	9kHz~3.6GHz: 90dB 3.6 GHz~8GHz: 80dB	70dB
Inherent residual response	-110dBm	-95dBm

Model		MRM080	MRM180
IF			
Spectrum Display Range		10kHz~40MHz	
Display Mode		Regular, average, and Max Hold	
IF Demodulation Bandwidth		1.5 kHz~40MHz (20 gears)	
Audio Demodulation		AM, FM, LSB, USB, CW, Pulse	
Demodulation Analysis		AM, FM	
Signal			
Scan Rate(100kHz, RBW)		80GHz/s	
Fast Fourier Transform (IF Spectrum)		2048 point (Blackman Window)	
Data Type	I/Q Data (14bit accuracy)	Bandwidth up to 40MHz	
	Spectrum Data	IF spectrum and sweep spectrum	
	Field-strength Level	Minimum channel bandwidth up to 1.5kHz	
Data Storage		512MB	
SCAN			
Panoramic Scan	Start/End Frequency	User selectable	
	Scanning step	125/250/500/625Hz/1.25/2.5/3.125/6.25/12.5/25/50/100/200/400kHz	
	Step Count	≤ 1500000 points	
Frequency Band Scan	Start/End Frequency	User selectable	
	User setting parameters	Scanning step, dwell time, audio demodulation	
	Step Count	≤ 4000 points	
Storage Scan	Storage location	Up to 1024 channels, users can edit channel frequency, dwell time, IF bandwidth, audio demodulation mode, etc	
Measurement Accuracy and Display Mode			
Frequency Resolution		3Hz	12Hz
Frequency Accuracy		±0.5ppm	±0.2ppm
		Aging rate: ±1ppm/ year	Aging rate: ±0.5ppm/ year
Display Error		±1.5dB	
Interface			
Antenna input		SMA,50Ω	
Maximum measurement level		+20dBm	
Reference Input		SMA,50Ω (10 MHz)	
		0dBm~+10dBm (input level)	
IF output (analog)		145MHz, SMA,50Ω	
I/Q output		LAN	
Audio output, analog		300Hz to 12.5kHz	
Data and Control Interface		Ethernet10/100BaseT	
General			
Operating temperature range		0 ℃ to +50 ℃	
Permissible temperature range		-10 ℃ to +50 ℃ (non condensing)	
Power		DC: 9V~13V	
		Current: 1.6 A(+12V)	Current: 1.8 A(+12V)
Core module dimensions		165mm×120mm×32mm	
Standard housing dimensions		245mm×190mm×44mm	
weight(Excluding casing)		900g	1000g

Ordering Information

Configure	Describe	Order No.
Main Engine	Monitoring receiver module	MRM080
		MRM180
Standard	CD (user manual, programming manual, upper computer software (basic software package))	
	LAN connection cable (standard Ethernet cable)	
Option	GPS/BD timing module	MRM-GPS
	Compact omnidirectional antenna (0.3~7.5GHz)	OA750
	Handheld directional antenna (0.6~8GHz)	DA800
	Module Standard Housing	MRM-WK

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